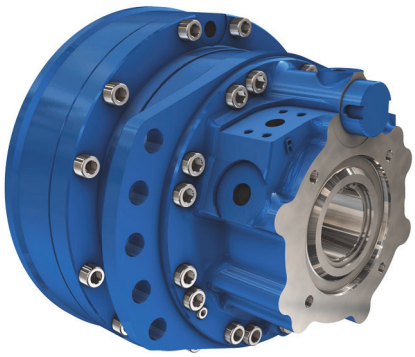
MK12 MKE12

COMPACT MOTORS



TECHNICAL CATALOG

POCLAIN Hydraulics

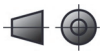
Methodology :
This document is intended for manufacturers of machines that incorporate Poclain Hydraulics products. It describes the technical characteristics of Poclain Hydraulics products and specifies installation conditions that will ensure optimum operation.
This document includes important comments concerning safety. They are indicated in the following way:

	**Safety comment.**

This document also includes essential operating instructions for the product and general information. These are indicated in the following way:

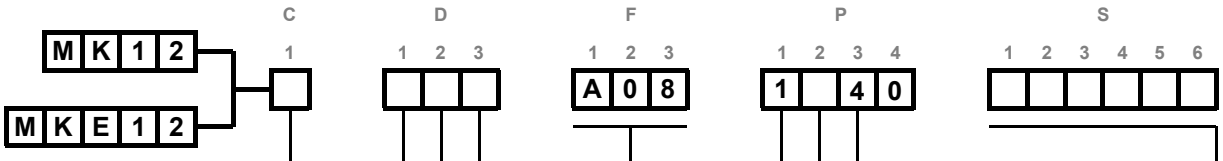
	**Essential instructions.**
	**General information .**
	**Information on the model number.**
	**Weight of component without oil.**
	**Volume of oil.**
	**Units.**
	**Tightening torque.**
	**Screws.**
	**Information intended for Poclain-Hydraulics personnel.**

The views in this document are created using metric standards.
The dimensional data is given in mm and in inches (inches are given in brackets in italic)



CONTENT

MODEL CODE



Cams with Equal Lobes		❶ cm³/tr [cu.in/rev.]	❷ cm³/tr [cu.in/rev.]
MK12	**8**	627 *[38,2]*	313 *[19,1]*
	9	702 *[42,8]*	351 *[21,4]*
	0	780 *[47,6]*	390 *[23,8]*
	1	857 *[52,3]*	428 *[26,1]*
	2	934 *[57,0]*	467 *[28,5]*
MKE12	**0**	1 043 *[63,6]*	521 *[31,8]*
	1	1 146 *[69,9]*	573 *[34,9]*
	2	1 248 *[76,1]*	624 *[38,1]*
	3	1 356 *[82,7]*	678 *[41,4]*

Cams with Unequal Lobes		❶ cm³/tr [cu.in/rev.]	❷ cm³/tr [cu.in/rev.]
MK12	**A**	781 *[47,6]*	467 *[28,5]* / 314 *[19,2]*
MKE12	**A**	1 043 *[63,6]*	624 *[38,1]* / 419 *[25,6]*

❶ **First displacement**

❷ **Second displacement**

One-piece valving cover single displacement	**A 0 8**

ISO 6162 Flanges ISO 6149-1 Connections	**1**
ISO 9974-1 Connections (M22 x 1.5)	**4**
ISO 9974-1 Connections (M27 x 2)	**5**
ISO 6149-1 Connections	**8**
ISO 11926-1 Connections	**A**

1-Displacement Valving	**1**
2-Displacement Valving or TwinlockTM Valving (Clockwise)	**D** Ratio 2 **E** Ratio <2 **F** Ratio >2
2-Displacement Valving or TwinlockTM Valving (Counterclockwise)	**G** Ratio 2 **H** Ratio <2 **J** Ratio >2

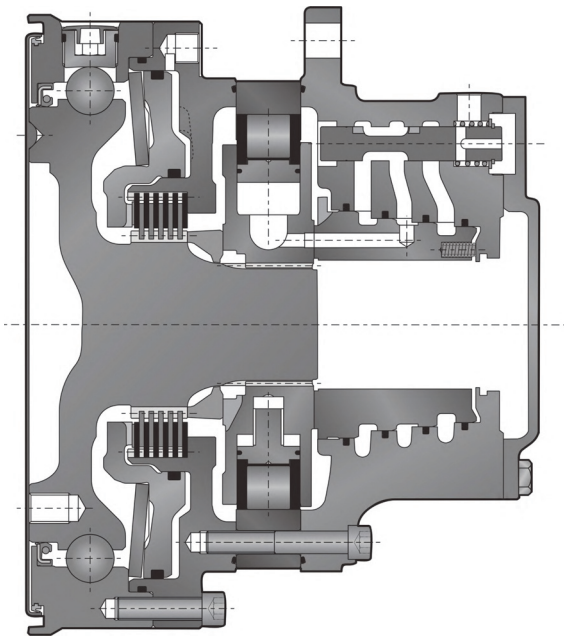
Without Fixation	**1**

Without brake	**0**
With brake	**2**

threaded holes M	**4**

With Mounting	**2**	**5**	**E**	**H**
	1-Displacement 2-Displacement	Exchange	Twin-Lock™	By-pass

Without Options or Adaptations	**0**
T4 Speed sensor installed	**2**
Diamond™	**7**
Predisposition for speed sensor	**8**
Hollow shaft	**A**
High efficiency	**H**
TR Speed sensor installed	**S**



Motor Inertia **0.09 kg.m²**

		❶ cm³/tr *[cu.in/rev.]*	❷ cm³/tr *[cu.in/rev.]*	Theoretical torque ❶ at 100 bar Nm	*at 1000 PSI [lb.ft]*	Max.power ❶ kW *[HP]*	❷ preferred kW *[HP]*	❷ non-preferred kW *[HP]*	Max. * speed ❶ tr/min	❷ *[RPM]*	Max. pressure bar *[PSI]*
Cams with equal lobes	MK12 **8**	627 *[38,2]*	313 *[19,1]*	997	*[507]*						
	MK12 **9**	702 *[42,8]*	351 *[21,4]*	1 116	*[568]*						
	MK12 **0**	780 *[47,6]*	390 *[23,8]*	1 240	*[631]*						
	MK12 **1**	857 *[52,3]*	428 *[26,1]*	1 363	*[693]*						
	MK12 **2**	934 *[57,0]*	467 *[28,5]*	1 485	*[755]*						
	MKE12 **0**	1 043 *[63,6]*	521 *[31,8]*	1 658	*[843]*						
	MKE12 **1**	1 146 *[69,9]*	573 *[34,9]*	1 822	*[927]*						
	MKE12 **2**	1 248 *[76,1]*	624 *[38,1]*	1 984	*[1 009]*						
	MKE12 **3**	1 356 *[82,7]*	678 *[41,4]*	2 156	*[1 096]*	41 *[55]*	27 *[36]*	21 *[28]*	100	*[100]*	450 *[6 527]*
Cams with unequal lobes	MK12 **A**	781 *[47,6]*	467 *[28,5]* / 314 *[19,2]*	1 242	*[631]*						
	MKE12 **A**	1 043 *[63,6]*	624 *[38,1]* / 419 *[25,6]*	1 658	*[843]*						

❶ **First displacement**

❷ **Second displacement**

(*)For an offset below 2.95 million ft.lbs.

Higher speeds are available: consult your Poclain Hydraulics application engineer

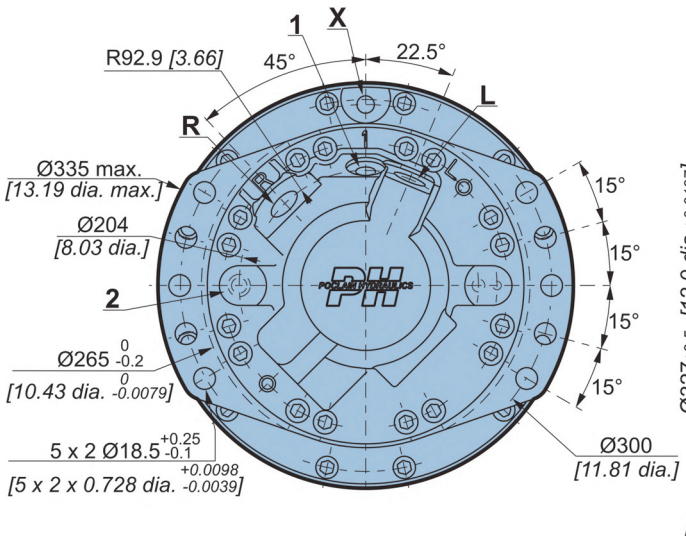
CHARACTERISTICS

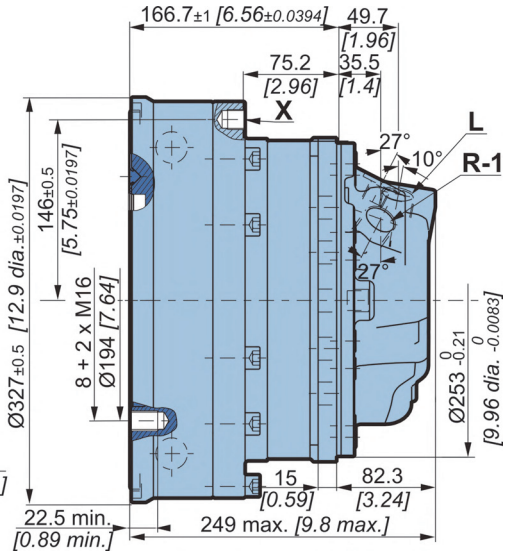
	C	D	F	P	S
MK12 / MKE12	1	1 2 3	A 0 8	1 _ 4 0	1 2 3 4 5 6

Dimensions for standard 1-displacement motor

	79 kg *[174 lb]*	82 kg *[180 lb]*
	0,85 L *[51 cu.in]*	0,85 L *[51 cu.in]*

D: 1 2 3 = 1 2 _

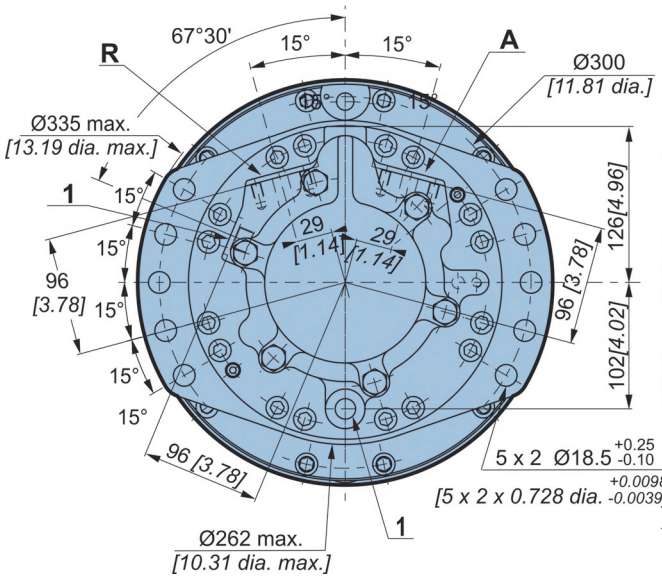


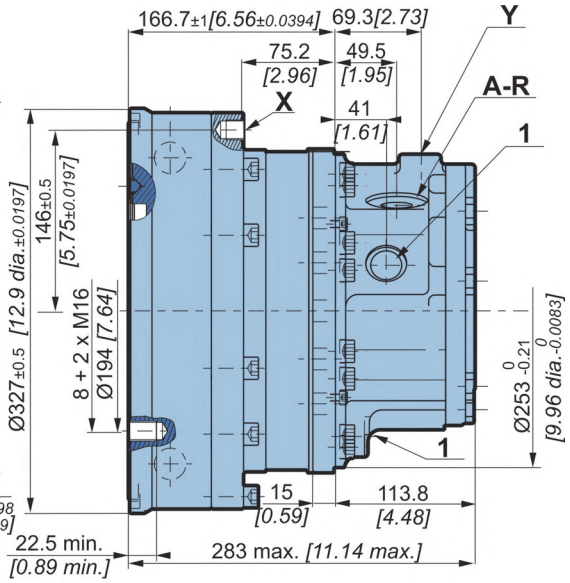


Dimensions for standard 2-displacement motor

	79 kg *[174 lb]*	82 kg *[180 lb]*
	0,85 L *[51 cu.in]*	0,85 L *[51 cu.in]*

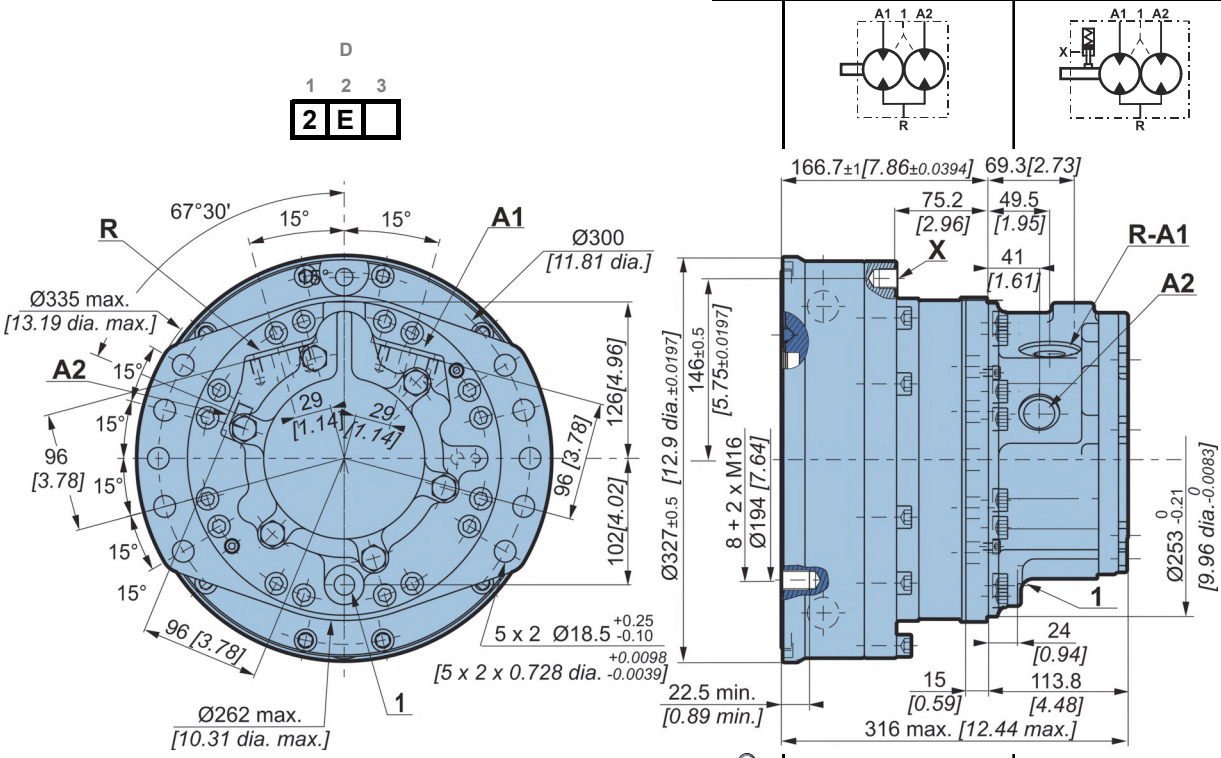
D: 1 2 3 = 2 2 _





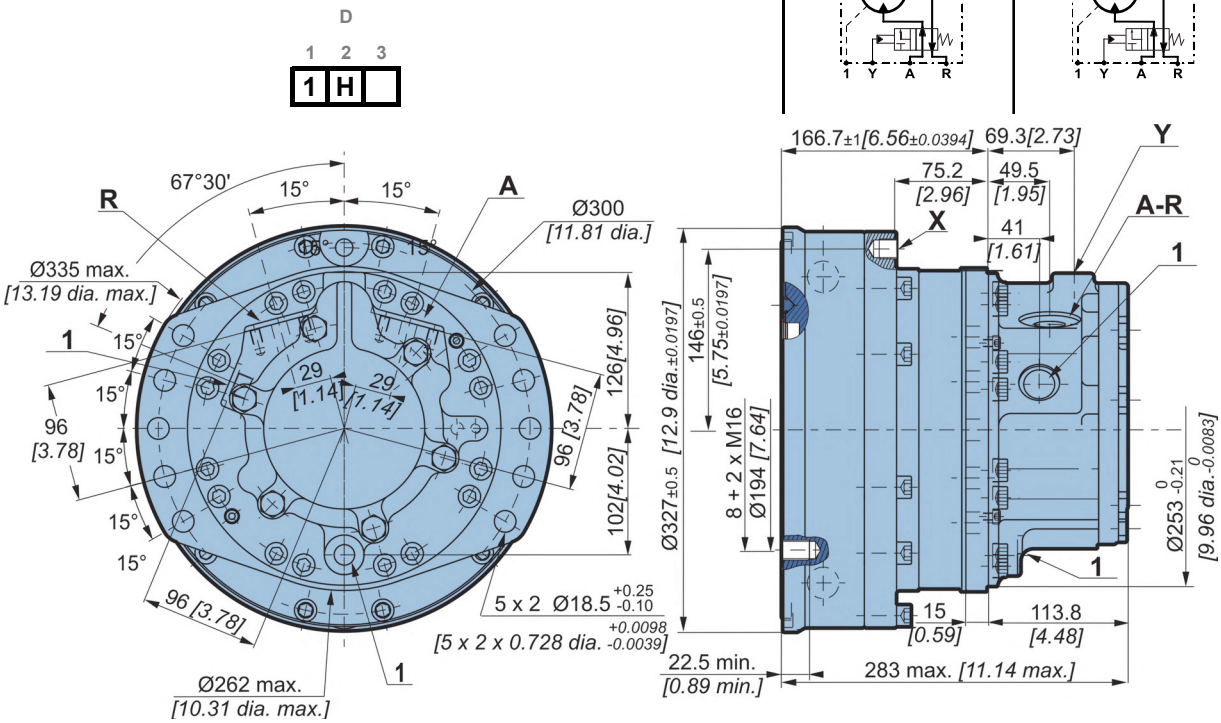
Dimensions for standard Twin-Lock™ motor

	79 kg *[174 lb]*	82 kg *[180 lb]*
	0,85 L *[51 cu.in]*	0,85 L *[51 cu.in]*



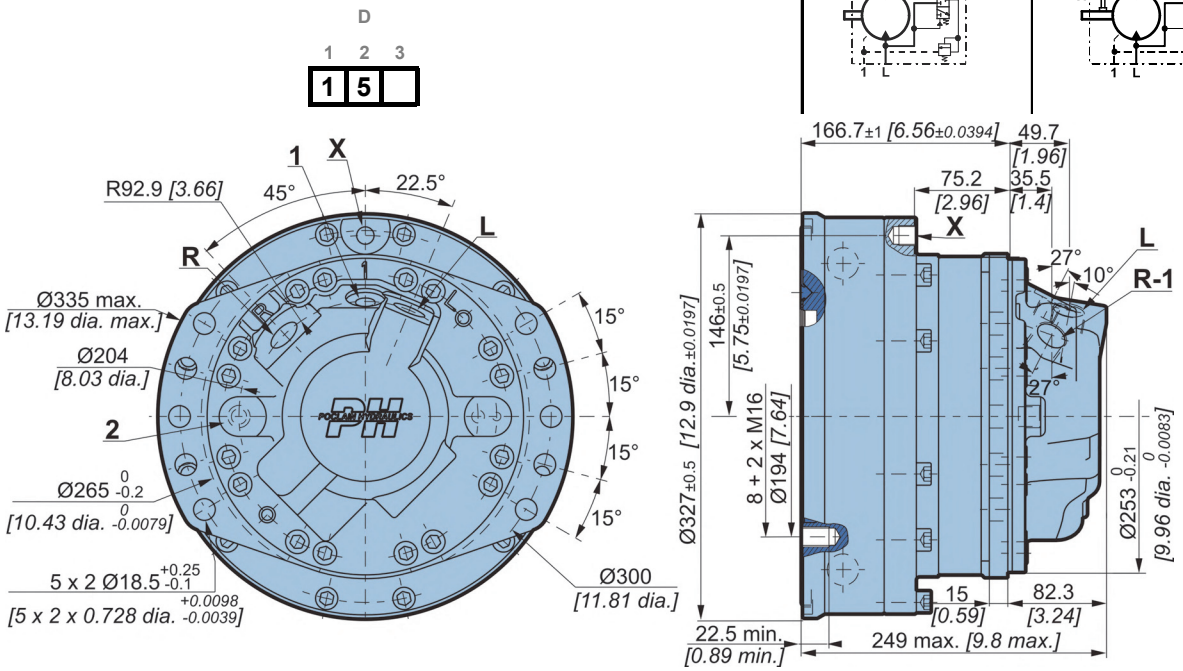
Dimensions for standard 1-displacement motor with by-pass

	79 kg *[174 lb]*	82 kg *[180 lb]*
	0,85 L *[51 cu.in]*	0,85 L *[51 cu.in]*



Dimensions for standard 1-displacement motor with built-in exchange

	79 kg *[174 lb]*	82 kg *[180 lb]*
	0,85 L *[51 cu.in]*	0,85 L *[51 cu.in]*



Exchange

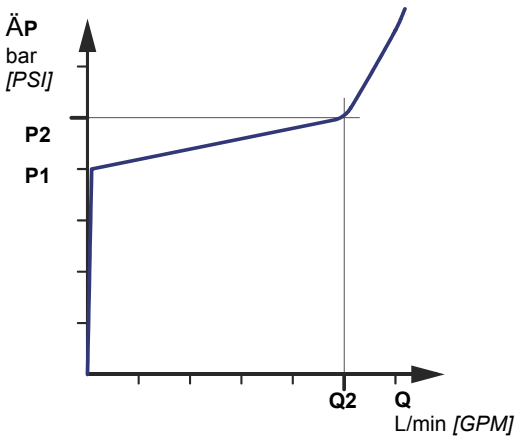
When a coding request is made, you must specify information on the threshold of the selector and the valve.

- Selector spool

Selector threshold		Opening pressure of selector	
bar	*[PSI]*	bar	*[PSI]*
6	*[87]*	6,4±0.8	*[93±11.6]*

- Fitted valve

P1		Q2		P2	
bar	*[PSI]*	L/min	*[GPM]*	bar	*[PSI]*
16±0.5	*[232±7.25]*	3,4±0.5	*[0,898±0.13]*	20	*[290]*
20±0.5	*[290±7.25]*	3,7±0.5	*[0,977±0.13]*	24	*[348]*
18±0.5	*[261±7.25]*	8,5±1	*[2,245±0.26]*	23	*[334]*



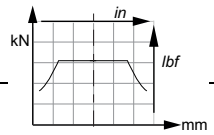
Rotating fastening screw

	Classe	N.m	*[lb.ft]*
8 + 2 M16 x 2	12,9	310	*[229]*

(*) The tightening torques are given for the indicated loads.

Load curves

Permissible radial loads



Max. permissible loads: 0 tr/min *[0 RPM]*; 0 bar *[0 PSI]*

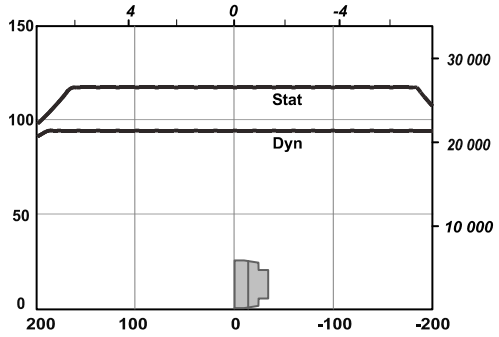
Continuous permissible loads:
> 0 tr/min *[> 0 RPM]*; 275 bar *[3 988 PSI].*

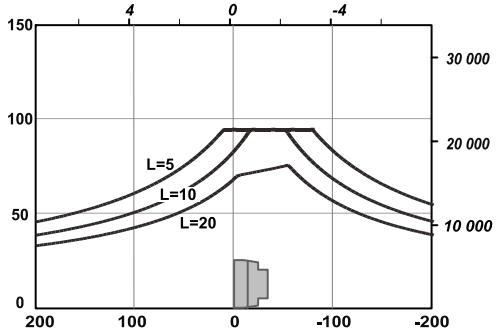
Service life of bearings

Test conditions :

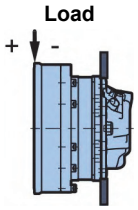
L : Millions B10 revolutions at 150 bars (average pressure), with 25 cSt fluid, code 0 displacement, without axial load.

1	0	4	0
1	1	4	0
1	2	3	4
P			





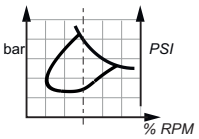
The service life of the components is influenced by the pressure.You must check that the combination of forces applied (Axial load / Radial load) is compatible with the permissible loads for the components, and that the resulting service lives of these components complies with the application's specifications. For an accurate calculation, consult your Poclain Hydraulics application engineer.

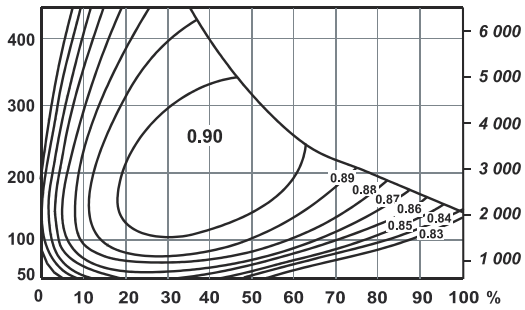


Efficiency

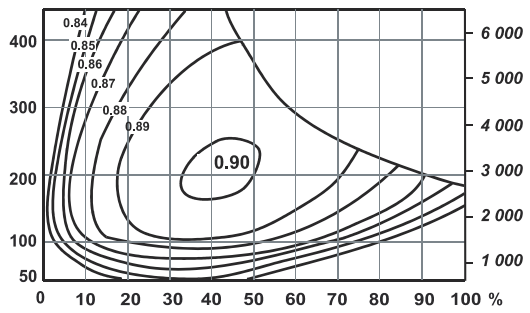
Overall efficiency

Average values given for guidance for code 0 displacement after 100 hours of operation with HV46 hydraulic fluid at 50°C *[122°F]*.



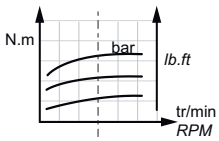


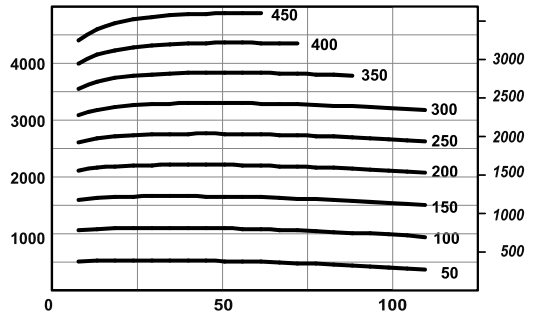
MK12

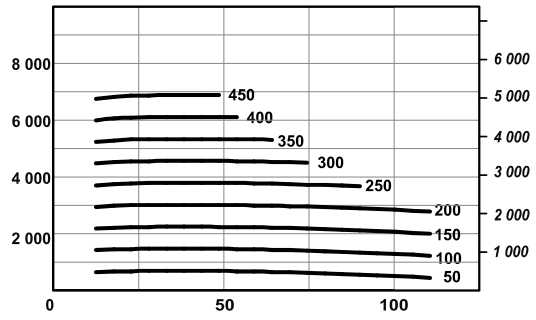


MKE12

Actual output torque

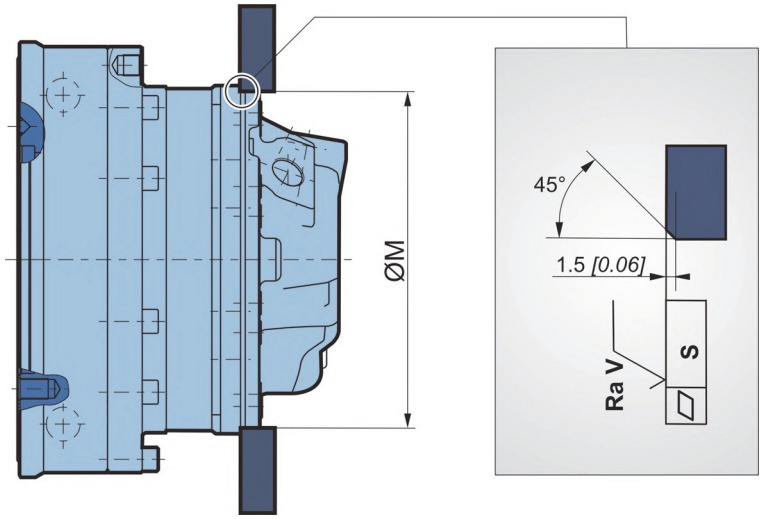






For a precise calculation, consult your Poclain Hydraulics application engineer.

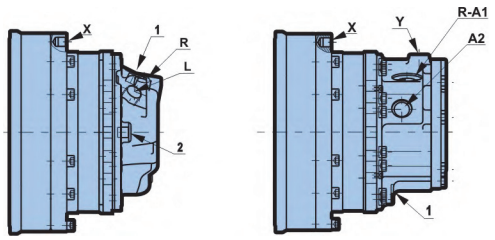
Chassis mounting

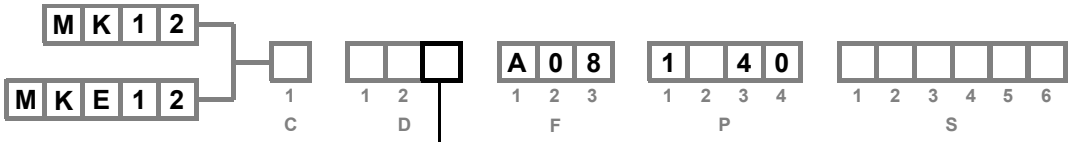


ØM (1) mm *[in]*	**S** mm *[in]*	**Ra V** µm *[µin]*	**Mounting**	**Class of screw**	N.m *[lb.ft]*
253 *[9,96]*	0,2 *[0,01]*	12,5 *[0,49]*	10 x M16 x 2	10,9	250 *[184]*

(1) + 0.3 *[+0.012]*
+ 0.2 *[+0.008]*

Hydraulic connections





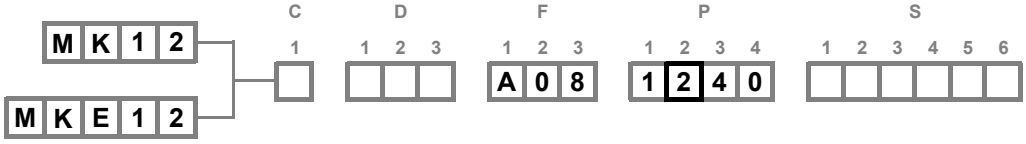
	Old standards	Standards	Power supply R,L A,R A1,A2	2nd displacement control Y	Drainage 1,2	Control of brake X
A	SAEJ514	ISO 11 926-1	1"1/16 - 12 UNF	9/16" - 18 UNF	3/4" - 16 UNF	3/4" - 16 UNF
1	ISO 6 162 DIN 3 852	ISO DP6162 ISO 9 974-1	DN13 PN400	M14 x 1.5	M18 x 1.5	M16 x 1.5
4	DIN 3 852 NFE 48 050	ISO 9 974-1	M22 x 1.5	M14 x 1.5	M18 x 1.5	M16 x 1.5
5	DIN 3 852 NFE 48 050	ISO 9 974-1	M27 x 2	M14 x 1.5	M18 x 1.5	M16 x 1.5
8	ISO 6 149-1	ISO 6 149-1	M22 x 1.5	M14 x 1.5	M18 x 1.5	M16 x 1.5

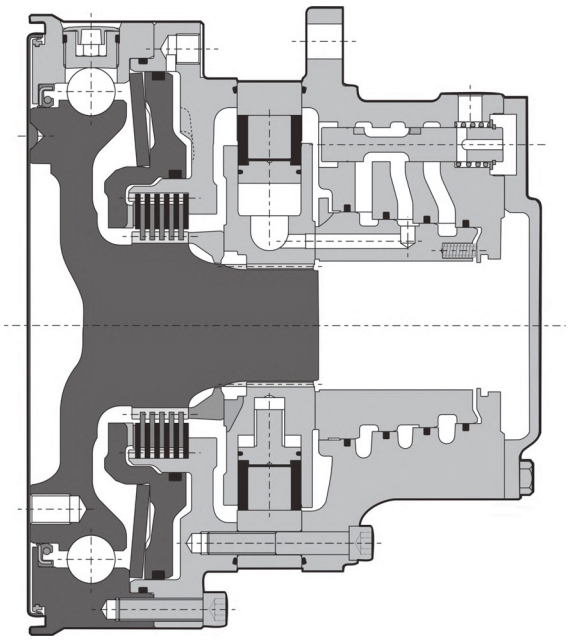
For the available port locations according to the valving, please consult your Poclain Hydraulics Applications Engineer

To find the connections' tightening torques, see the brochure "Installation guide" N° B61352L.

You are strongly advised to use the fluids specified in brochure "Installation guide" N° B61352L.

Brakes





Brake principle
This is a multidisc brake which is activated by a lack of pressure. The spring exerts a force on the piston, which resses on the fixed and mobile discs, and immobilizes the shaft. The braking torque decreases in linear proportion to the brake release pressure.

Parking brake torque with 0 bars in the housing (new brake)	9 000 N.m	*[6 640 lb.ft]*
Emergency dynamic braking torque with 0 bars in the housing (gives a maximum of 10 emergency braking operations)	5 850 N.m	*[4 310 lb.ft]*
Residual parking torque at 0 bars in the housing*	6 750 N.m	*[4 980 lb.ft]*
Minimum brake release pressure	12 bar	*[174 PSI]*
Maximum brake release pressure	30 bar	*[435 PSI]*
Capacity	132 cm³	*[8,1 cu.in]*
Brake release capacity	28 cm³	*[1,7 cu.in]*
Max. energy dissipation	100 KJ	

* After being used as emergency brake

The brake is integral to the bearing; refer to the model code (tab opposite).

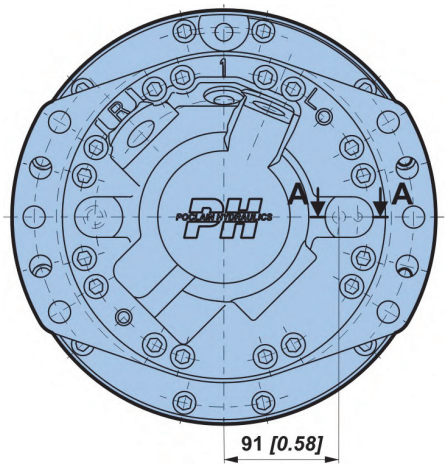
OPTIONS

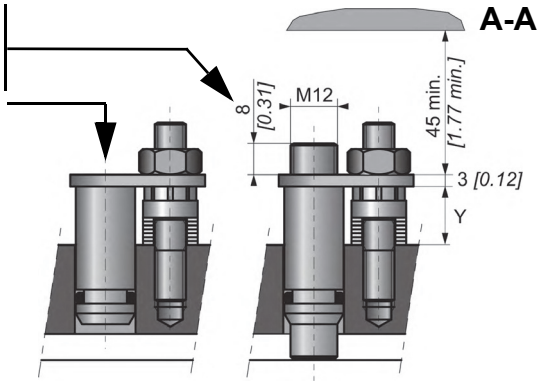
	C	D	F	P	S
	1	1 2 3	1 2 3	1 2 3 4	1 2 3 4 5 6
MK12			A 0 8	1 4 0	
MKE12					

You can accumulate more than one optional part. Consult your Poclain Hydraulics sales engineer.

2 - S - Q - 8 - Installed speed sensor or predisposition

Designation	C
T4 Speed sensor (without rotation direction)	2
TR Speed sensor (digital rotation direction)	S
TD Speed sensor (two phase shifted frequencies)	Q
Predisposition for Speed sensor	8





Max. length Y= 21

Standard number of pulses per revolution= 60

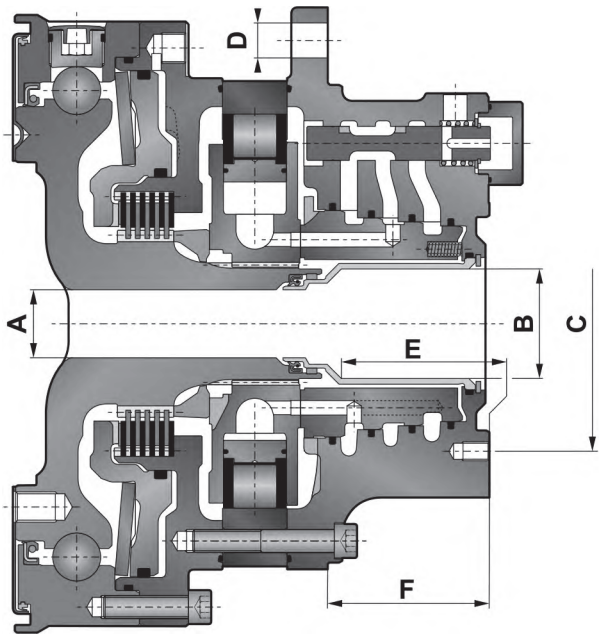
Look at the "Mobile Electronic" N° A01889D technical catalogue for the sensor specifications and its connection.

To install the sensor, see the "Installation guide" brochure No. B61352L.

7 - Diamond™

Special treatment of the motor core which considerably increases its strength, making the motor much more tolerant to temporary instances of the operating conditions being exceeded.

A - Hollow shaft



	A	B	C	D	E	F
	mm *[in]*	mm *[in]*	mm *[in]*	mm *[in]*	mm *[in]*	mm *[in]*
1 Displacement	Ø 36,0 *[1,42 dia.]*	Ø 58,0 *[2,28 dia.]*	4 M10 x 1.5 Ø 140,0 *[5,51 dia.]*	Ø 18,5 *[0,73 dia.]*	69,0 *[2,72]*	76,9 *[3,03]*
2 Displacement	Ø 36,0 *[1,42 dia.]*	Ø 58,0 *[2,28 dia.]*	4 M10 x 1.5 Ø 140,0 *[5,51 dia.]*	Ø 18,5 *[0,73 dia.]*	78,0 *[3,07]*	85,6 *[3,37]*

H - High efficiency

Reinforced piston sealing to improve volumetric efficiency.

For a precise calculation, consult your Poclain Hydraulics application engineer.

POCLAIN
Hydraulics

03/03/2020
801 578 139T
801 578 150F
801 578 161S
801 578 172E
801 578 183R
A09218U

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